

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A [[D]]device for providing spongy bone with bone substitute and/or bone reinforcing material, wherein:

at least one perforating device (4) is provided for making at least one hole (5) in the spongy bone (1), and-

at least one flushing or rinsing device (6) is provided for flushing or rinsing the hole (5) with a rinsing agent (7),

at least one supply device (8) is provided for permitting supply of bone substitute and/or bone reinforcing material (3) to the hole (5) in the spongy bone (1), and

at least one vacuum source (9) is provided for generating a vacuum in the hole (5) in the spongy bone (1) for sucking rinsing agent (7) into said hole (5) and rinsing agent (7) and tissue material out of said hole (5), wherein

that vacuum source (9) is provided also to generate a vacuum which is adapted for sucking and/or facilitating insertion or feeding of the bone substitute and/or bone reinforcing material (3) into the hole (5) in the said spongy bone (1) after rinsing agent (7) and tissue material have been sucked out of said hole (5) and for distributing the bone substitute and/or bone reinforcing material in the hole without said material penetrating into the blood paths.

2. (Canceled)

3. (Currently Amended) The [[D]]device according to claim 1, wherein the vacuum source (9) is provided to generate a vacuum in the hole (5) of the spongy bone (1) which is adapted such that the bone substitute and/or bone reinforcing material (3) is sucked into said hole (5) and distributed therein without substantial portions thereof being sucked out of the hole (5).

4. (Canceled)

5. (Currently Amended) The [[D]]device according to claim 1, wherein a collecting device (27) is provided to collect tissue material which by the vacuum source (9) has been sucked out of the hole (5) of the spongy bone (1) for preventing tissue material from being sucked into the vacuum source (9) and/or into a monomer filter (28) and/or into a bacteria filter (29).

6. (Currently Amended) The [[D]]device according to claim 1, wherein a monomer filter (28) is provided for preventing poisonous gases, which are generated during production of bone substitute and/or bone reinforcing material (3) from being discharged into the surroundings.

7. (Currently Amended) The [[D]]device according to claim 1, wherein a bacteria filter (29) is provided for preventing bacteria from getting into the hole (5) of the spongy bone (1) if a connection between the vacuum source (9) and the spongy bone (1) is opened unintentionally.

8. (Currently Amended) The [[D]]device according to claim 1, wherein a non-return valve device (26) is provided to prevent tissue material and/or any other material and/or bacteria from being sucked into the hole (5) of the spongy bone (1) if the

connection between the vacuum source (9) and the hole (5) in the spongy bone (1) is opened unintentionally.

9. (Currently Amended) The [[D]]device according to claim 5, wherein the non-return valve device (26) is located between the hole (5) in the spongy bone (1) and the collecting device (27).

10. (Currently Amended) The [[D]]device according to claim 5, wherein the non-return valve device (26) is located between the monomer filter (28) and/or bacteria filter (29) and the hole (5) in the spongy bone (1).

11. (Currently Amended) The [[D]]device according to claim 1, wherein a container (18) for producing and/or storing bone substitute and/or bone reinforcing material (3) is provided with a feeding device (30) for feeding bone substitute and/or bone reinforcing material (3) out of the container (18) and into the hole (5) of the spongy bone (1) at the same time the vacuum source (9) generates a vacuum therein.

12. (Currently Amended) The [[D]]device according to claim 1, wherein a container (18) for producing and/or storing bone substitute and/or bone reinforcing material (3) is provided with a feeding device (30) for feeding bone substitute and/or bone reinforcing material (3) into the hole (5) of the spongy bone (1) after the vacuum source (9) has generated a vacuum therein.

13. (Currently Amended) The [[D]]device according to claim 11, wherein the feeding device (30) is manually operable.

14. (Currently Amended) The [[D]]device according to claim 1, wherein the vacuum source (9) is provided to generate a vacuum of between 0,5 bar and 0,92 bar in the hole (5) of the spongy bone (1).

15. (Currently Amended) The ~~[[D]]~~device according to claim 14, wherein the vacuum source (9) is provided to generate a vacuum of between 0,7 and 0,8 bar in the hole (5) of the spongy bone (1).

16. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein a valve device (32) is provided to close or interrupt the supply of bone substitute and/or bone reinforcing material (3) to the hole (5) of the spongy bone (1) until the vacuum source (9) has generated a suitable vacuum therein and that the valve device (32) is provided to be opened to permit supply of bone substitute and/or bone reinforcing material (3) such that said material can be sucked into the hole (5) of the spongy bone (1) when said suitable vacuum has been measured therein.

17. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein at least a first and a second cannula or needle (19, 20) are insertable into the spongy bone (1) such that they are simultaneously directed into the hole (5) thereof and that the first cannula or needle (19) is connected to a container (18) for producing and/or storing the bone substitute and/or bone reinforcing material (3) while the second cannula or needle (20) is connected to the vacuum source (9).

18. (Currently Amended) The ~~[[D]]~~device according to claim 17, wherein the flushing or rinsing device (6) comprises a rinsing agent container (16) which is connected to the first cannula or needle (19) for leading rinsing agent (7) into the hole ~~4(5)~~ (5) of the spongy bone (1) through said first cannula (19) and out of said hole (5) to the second cannula or needle (20).

19. (Currently Amended) The [[D]]device according to claim 18, wherein a valve device (32) is provided to either open for supply bone substitute and/or bone reinforcing material (3) or of rinsing agent (7) through the first cannula or needle (19).

20. (Currently Amended) The [[D]]device according to claim 1, wherein the rinsing device (6) is provided to flush or rinse the sides (5a) of the hole (5) so that tissue material and other material are flushed away therefrom such that depressions (5b) are formed therein, into which the bone substitute and/or bone reinforcing material (3) can penetrate.

21. (Currently Amended) The [[D]]device according to claim 1, wherein a vacuum source (9) is provided to suck rinsing agent (7) through the hole (5) in the spongy bone (1).

22. (Currently Amended) The [[D]]device according to claim 21, wherein the vacuum source (9) for sucking rinsing agent (7) through the hole (5) in the spongy bone (1) is the same vacuum source which is used for sucking and/or facilitating insertion or feeding of bone substitute and/or bone reinforcing material (3) into said hole (5).

23. (Currently Amended) The [[D]]device according to claim 1, wherein the perforating device (4) comprises an outer tube member (11) which can be located at the spongy bone (1), and a perforating means (12) which is movable in said outer tube member (11) in coaxial and/or rotary direction and which includes and/or cooperates with a perforating member (13) for making the hole (5) in the spongy bone (1).

24. (Currently Amended) The [[D]]device according to claim 23, wherein the perforating means (12) comprises an inner tube member (15) for leading rinsing agent (7) into or out of the hole (5) in the spongy bone (1).

25. (Currently Amended) The [[D]]device according to claim 23, wherein the outer or inner tube member (11 or 15) is connected to a vacuum source (9) for sucking rinsing agent (7) through the hole (5) in the spongy bone (1) and out of said hole through the other tube member(11).

26. (Currently Amended) The [[D]]device according to claim 1, wherein the perforating device (4) can be provided with or comprises several units for making at least two holes (5) in the spongy bone (1) either by said holes extending into each other or by having such spongy bone (1) between them which can be penetrated by air and provided with bone substitute and/or bone reinforcing material (3).

27. (Currently Amended) The [[D]]device according to claim 1, wherein the vacuum source (9) is an injector pump (21) which is operated by a compressed medium.

28. (Currently Amended) The [[D]]device according to claim 27, wherein the injector pump (21) can be connected to a compressed-medium device (22) which is designed as a compressed-air device which is provided in localities in or close to which the vacuum source (9) shall be used.

29. (Currently Amended) The [[D]]device according to claim 28, wherein the injector pump (21) can be connected to a compressed-medium device (22) with commercial gas.

30. (Currently Amended) The [[D]]device according to claim 28, wherein the injector pump (21) can be connected to a compressed-medium device (22) which can operate said pump with a compressed-medium pressure of [[4,5]] 4.5 – [[8,5]] 8.5 bar.

31. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the vacuum source (9) is an electrically operated vacuum pump.

32. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the vacuum source (9) is a pump operated by gas.

33. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the vacuum source (9) is operated by hand.

34. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the spongy bone (1) is a spongy vertebra (2).

35. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the spongy bone (1) is a fracture due to osteoporosis.

36. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the spongy bone (1) is a femoral or knee fracture.

37. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the rinsing agent (7) is a sodium chloride solution.

38. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the rinsing agent (7) contains a detergent.

39. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the rinsing agent (7) contains at least one trombolytic substance, e.g. heparin, streptokinase, urokinase, TPA and/or other substances dissolving coagulum and thrombi.

40. (Currently Amended) The ~~[[D]]~~device according to claim 1, wherein the rinsing agent (7) is distilled water.

41. (Currently Amended) The [[D]]device according to claim 1, wherein a device (9 and/or 30) for imparting pulse like suction and/or insertion movements to the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1).

42. (Currently Amended) The [[D]]device according to claim 1, wherein a device (9 and/or 30) for imparting reciprocating suction and/or insertion movements to the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1).

43. (Currently Amended) The [[D]]device according to claim 1, wherein a device (9 and/or 30) for pulse like suction and/or feeding of the rinsing agent (7) through the hole (5) in the spongy bone (1).

44. (Currently Amended) The device according to claim 1~~Bone substitute and/or bone reinforcing material which can be applied or provided in a hole (5) in spongy bone (1) in which a vacuum is generated, wherein a component forming part of the bone substitute and/or bone reinforcing material (3) sucked and/or inserted or fed into the spongy bone (1) by means of the vacuum source (9)~~ is a mineral material or substantially mineral material or a ceramic or substantially ceramic material.

45. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 44, wherein the mineral material or ceramic material is a hardenable mineral or ceramic which can be brought to harden in the spongy bone (1).

46. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 45, wherein the mineral material or ceramic can be brought to harden by being mixed with a hardening agent such ~~[[a]]~~ as water.

47. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 44, wherein the mineral material or ceramic is selected from the group comprising calcium sulphate- α -hemihydrate, calcium sulphate- β -hemihydrate, calcium sulphate-dihydrate, calcium carbonate, α -tricalcium phosphate, hydroxyapatite, dicalcium phosphate-di-hydrate, anhydrous dicalcium phosphate, tetracalcium phosphate, β -tricalcium phosphate, calcium deficient hydroxyapatite, monocalcium phosphate-monohydrate, mono-calcium phosphate, calcium-pyrophosphate, precipitated hydroxyapatite, carbonaceous apatite (dahlite), octa-calcium phosphate, amorphous calcium phosphate, oxyapatite, carbonate apatite and calcium aluminate.

48. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 44, wherein an X-ray contrast agent is mixed with the ceramic material.

49. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 48, wherein the X-ray contrast agent is water soluble and non-ionic.

50. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 49, wherein the water soluble, non-ionic X-ray contrast agent is selected from the group comprising iohexol, ioversol, iopamidol, iotrolan, metrizamide, iodecicol, iodecicol, ioglucol, ioglucamide, ioglundide, iogulamide, iomeprol, iopentol, iopromide, iosarcol, iosimide, iotusal, ioxilan, iofrotal and iodecol.

51. (Currently Amended) The device according to claim 1 ~~Bone substitute and/or bone reinforcing material which can be applied or provided in hole (5) in spongy bone (1) in which a vacuum is generated~~, wherein the bone substitute and/or bone

reinforcing material (3) sucked an/or inserted or fed into the spongy bone (1) by means of the vacuum source (9) is a bone cement including the components polymer, preferably of polymethyl methacrylate (PMMA) type, and monomer, preferably of methylmethacrylate (MMA) type, which components harden to bone cement after mixing with each other and after said sucking and/or insertion or feeding thereof into the hole (5) of the spongy bone (1).

52. (Currently Amended) The device ~~Bone substitute and/or bone reinforcing material~~ according to claim 51, wherein the bone substitute and/or bone reinforcing material (3) consists of mineral and/or ceramic in combination with polymer material.

53. (Currently Amended) A [[M]]method for providing spongy bone with bone substitute and/or bone reinforcing material, wherein:

at least one hole (5) is made in the spongy bone (1),
the at least one hole (5) is flushed or rinsed with rinsing agent (7), ~~and~~
the at least one hole (5) is supplied with bone substitute and/or bone reinforcing material, and

a vacuum is generated in the hole (5) for sucking and/or facilitating insertion or feeding of the bone substitute and/or bone reinforcing material (3) into the hole (5).

54. (Currently Amended) The [[M]]method according to claim 53, wherein a vacuum is generated in the hole (5) for sucking rinsing gent (7) through said hole (5).

55. (Currently Amended) The [[M]]method according to claim 53, wherein the rinsing agent (7) is brought to flush tissue material and other material away from the sides (5a) of the hole (5) such that depressions (5b) are formed therein and that bone

substitute and/or bone reinforcing material (3) is brought to penetrate into said depressions (5b).

56. (Currently Amended) A [[M]]method for providing spongy bone with bone substitute and/or bone reinforcing material (3), which is applied or provided in at least one hole (5) in the spongy bone (1) in which a vacuum is generated, wherein the bone substitute and/or bone reinforcing material (3) is brought to pulsate during its application in the spongy bone (1).

57. (Currently Amended) The [[M]]method according to claim 56, wherein reciprocating movements are imparted to the bone substitute and/or bone reinforcing material (3) during its application in the hole (5) in the spongy bone (1).

58. (Currently Amended) A [[M]]method for providing spongy bone with bone substitute and/or bone reinforcing material (3), which is applied or provided in at least one hole (5) in the spongy bone (1) in which a vacuum is generated and wherein the hole (5) is flushed or rinsed with rinsing agent (7) before application therein of the bone substitute and/or bone reinforcing material (3), wherein the rinsing agent (7) is sucked pulsatingly through the hole (5) in the spongy bone (1) by generating a pulsating vacuum in said hole (5).

59. (New) The device according to claim 39, wherein the at least one thrombolytic substance is chosen from heparin, streptokinase, urokinase, TPA, and other substances dissolving coagulum and thrombi, and mixtures thereof.

60. (New) The device according to claim 51, wherein the components polymer is polymethyl-methacrylate (PMMA)-type, and the components monomer is methylmethacrylate (MMA)-type.